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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/521,694

01/18/2005

Eckard Steiger

10191/3728

1217

26646 7590 03/24/2008

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EXAMINER

NGUYEN, CHUONG P

ART UNIT

PAPER NUMBER

3663

MAIL DATE

DELIVERY MODE

03/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/521,694	<b>Applicant(s)</b> STEIGER, ECKARD	
	<b>Examiner</b> Chuong P. Nguyen	<b>Art Unit</b> 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 December 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10-30 is/are pending in the application.
- 4a) Of the above claim(s) 10-13 and 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14, 15 and 19-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/26/2007 has been entered.
2. Applicants' 12/26/2007 Amendment, which directly amended claim 20; added new claim 30; and traversed the rejection of the claims of the 07/19/2007 Office Action are acknowledged.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14, 19, 20-28, and 30, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Winner (4,422,073 – hereinafter '**073**') in view of Winner (IDS reference 4,464,653 – hereinafter '**653**').

Regarding claims 14 and 30, '**073**' discloses in Fig 1 a control unit (i.e. combustible gas detection system) comprising: a sensor (i.e. sensor module 11) comprising a sensor element (i.e. any of elements 15-18, 21-29, 32-37), at least one digital interface (i.e. A/D converter 25), and

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means for transmitting a fault pattern via the at least one digital interface (i.e. UART 27) (col 2, line 20 – col 4, line 17); and a processor (i.e. controller 10) that receives at least one signal from the sensor via the at least one digital interface (col 2, line 20 – col 4, line 17). ‘073’ does not explicitly disclose the fault pattern is a digital fault pattern comprising individual bits corresponding to different fault flags; the at least one sensor signal includes the fault pattern and the processor evaluates the at least one sensor signal as a function of the fault pattern. ‘653’ teaches in the same field of endeavor in Fig 8-9 the fault pattern is a digital fault pattern comprising individual bits corresponding to different fault flags (col 8, line 45 – col 11, line 24); the at least one sensor signal includes the fault pattern and the processor evaluates the at least one sensor signal as a function of the fault pattern (col 4 – col 5; col 8, line 45 – col 11, line 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such fault pattern is a digital fault pattern comprising individual bits corresponding to different fault flags; the at least one sensor signal includes the fault pattern and the processor evaluates the at least one sensor signal as a function of the fault pattern as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

In addition regarding claim 30, ‘073’ does not explicitly disclose the sensor is configured to transmit a single operating state bit with every regular sensor output value transmission, the single operating state bit indicating that at least one fault is detected by the sensor; and the sensor is configured to respond to two different read instructions, returning a first portion of the fault

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pattern in response to a first read instruction, and a second portion of the fault pattern in response to a second read instruction, and wherein the operating state bit indicates whether at least one of the two read instructions will return a fault indication. ‘653’ teaches in the same field of endeavor in Fig 8-9 the sensor is configured to transmit a single operating state bit with every regular sensor output value transmission (col 8, line 42 – col 9, line 28; col 10, line 20+), the single operating state bit indicating that at least one fault is detected by the sensor (col 8, line 42 – col 9, line 28; col 10, line 20+); and the sensor is configured to respond to two different read instructions, returning a first portion of the fault pattern in response to a first read instruction, and a second portion of the fault pattern in response to a second read instruction, and wherein the operating state bit indicates whether at least one of the two read instructions will return a fault indication (col 10, line 20 – col 11, line 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such sensor as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 19, ‘073’ does not explicitly disclose each fault flag corresponds to a different sensor-internal monitoring mechanism. ‘653’ teaches in the same field of endeavor in Fig 8-9 each fault flag corresponds to a different sensor-internal monitoring mechanism (col 4 – col 5; col 8, line 45 – col 11, line 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such fault flag as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and

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evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 20, ‘073’ does not explicitly disclose the sensor is configured to transmit a single operating state bit with every regular sensor output value transmission, the single operating state bit indicating that at least one fault is detected by the sensor, wherein the sensor is configured to respond to two different read instructions, returning a first portion of the fault pattern in response to a first read instruction, and a second portion of the fault pattern in response to a second read instruction, and wherein the operating state bit indicates whether at least one of the two read instructions will return a fault indication. ‘653’ teaches in the same field of endeavor in Fig 8-9 the sensor is configured to transmit a single operating state bit with every regular sensor output value transmission (col 8, line 42 – col 9, line 28; col 10, line 20+), the single operating state bit indicating that at least one fault is detected by the sensor (col 8, line 42 – col 9, line 28; col 10, line 20+), wherein the sensor is configured to respond to two different read instructions, returning a first portion of the fault pattern in response to a first read instruction, and a second portion of the fault pattern in response to a second read instruction, and wherein the operating state bit indicates whether at least one of the two read instructions will return a fault indication (col 10, line 20 – col 11, line 24). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such sensor as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination

of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 21, ‘073’ does not explicitly disclose a memory connected to the processor. ‘653’ teaches in the same field of endeavor in Fig 1-2 such memory (i.e. ROM 26, RAM 27) (col 3, line 5+; col 4, lines 18-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such memory as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of storing data since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 22, both ‘073’ and ‘653’ disclose the data output is for a combustible gas detection system instead of a restraint system of an automotive system. However, since detecting of a faulty sensor is well known in the art of a operating system such as vehicle, computer, plant, factory; thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the data output that is connectable to a restraint system of an automotive system since this is well known in the art and since it has been held that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill (MPEP 2143).

Regarding claim 23, ‘073’ does not explicitly disclose a monitoring circuit connectable to the digital interface of the sensor for evaluating the at least one sensor signal and influencing the enabling of a restraint arrangement based on the evaluation of the at least one sensor signal. ‘653’ teaches in the same field of endeavor in Fig 1-2 such monitoring circuit (col 2, line 48 - col

3, line 67; col 5, line 1+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such monitoring circuit as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 24, ‘073’ discloses the sensor element is for acquiring a measured variable (i.e. well known in the art of sensor). In addition, ‘653’ teaches in the same field of endeavor in Fig 7 the sensor element is for acquiring a measured variable (col 8, line 42 – col 10, line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such sensor element as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 25, it appears that both ‘073’ and ‘653’ inventions would be concerned with a functional and monitoring module for performing analog-to-digital conversion of the sensor signal, including the measured variable (i.e. A/D converter 18, 25 in conjunction with other elements) (‘073’ – Fig 1; col 2, line 46+; ‘653’ – Fig 2; col 4, line 8+).

Regarding claim 26, ‘073’ does not explicitly disclose the functional and monitoring module is for monitoring the sensor. ‘653’ teaches in the same field of endeavor in Fig 1-2 the functional and monitoring module is for monitoring the sensor (col 2, line 48 - col 3, line 67; col



5, line 1+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such functional and monitoring module as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 27, ‘073’ does not explicitly disclose the sensor continuously updates the fault pattern. ‘653’ teaches in the same field of endeavor the sensor continuously updates the fault pattern (Abstract; col 4, lines 1-17; col 4, line 46+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such sensor as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

Regarding claim 28, ‘073’ does not explicitly disclose the fault pattern including a value of a measured variable which produced a fault. ‘653’ teaches in the same field of endeavor in Fig 7-9 the fault pattern including a value of a measured variable which produced a fault (col 8, line 42 – col 10, line 17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such fault pattern as taught by ‘653’ in the system of ‘073’ because it does no more than yield predictable results of detecting and evaluating the fault pattern of a sensor since it has been held that the combination of familiar elements according to

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known methods is likely to be obvious when it does no more than yield predictable results (MPEP 2143).

5. Claims 15 and 29, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over ‘073’ modified by ‘653’ as applied to claim 14 above, and further in view of Mergenthaler et al (6,122,577).

Regarding claim 15, ‘073’ modified by ‘653’ do not explicitly disclose the sensor is disposed inside a housing of the control unit. Mergenthaler et al teach in the same field of endeavor in Fig 1 the sensor is disposed inside a housing of the control unit (i.e. broadly interpreted as vehicle 101). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such housing for the sensor as taught by Mergenthaler et al in the system of ‘073’ modified by ‘653’ since it has been held that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill (MPEP 2143).

Regarding claim 29, ‘073’ modified by ‘653’ do not explicitly disclose the sensor including a rotation rate sensor for an automotive system. Mergenthaler et al teach in the same field of endeavor in Fig 1 such rotation rate sensor 104 (col 4, line 40+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate such rotation rate sensor as taught by Mergenthaler et al in the system of ‘073’ modified by ‘653’ since it has been held that if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way,

using the technique is obvious unless its actual application is beyond his or her skill (MPEP 2143).

6. While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims. See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

7. The statements of intended use or field of use (i.e. claims 14, 30 – that receives; claim 23 – for evaluating, for influencing; claim 25 – for performing; claim 26 – for monitoring; claim 27 – updates) are essentially method limitations or statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference.

See MPEP § 2114 which states:

A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions.

Apparatus claims cover what a device is not what a device does.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

### ***Response to Arguments***

8. Applicant's arguments with respect to claims 14-15, 19-29 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuong P. Nguyen whose telephone number is 571-272-3445. The examiner can normally be reached on M-F, 8:00 - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CN

/Jack W. Keith/  
Supervisory Patent Examiner, Art Unit 3663